Urban District of Lakes

ANNUAL REPORT

OF THE

Medical Officer of Health

FOR THE YEAR

1952

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C. TINLING AND COMPANY, LIMITED, PRINTERS, 53, VICTORIA STREET

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To the Chairman and Members of the Urban District Council of Lakes.

Sir, Ladies and Gentlemen,

I have the honour to submit to you my Annual Report on the health of the Urban District during the year 1952.

There are signs of better unity between the hospitals, general practice and the public health services. The upheaval of the National Health Service Act of 1946 drove deep schisms into the old established partnership. Good will and professional loyalties are gradually restoring a unity of purpose.

Undue emphasis still lies on disease and its treatment, but the ever mounting cost is a solemn reminder that prevention might be better. The cherished Garden of Eden now has the serpent of fiscal expediency.

In the field of preventive medicine the scope is unlimited for those who have the courage to look beyond their immediate surroundings. The service has a proud record in the past and an unquenchable faith in the future.

I wish to acknowledge the help and ready co-operation of my colleague the County Medical Officer of Health, and also the assistance afforded to me by the local general medical practitioners.

I am indebted also to the Sanitary Inspector and his staff for the spirit of teamwork which exists in my department, and for the fund of local knowledge which they have laid at my disposal.

I have the honour to be,
Sir, Ladies and Gentlemen,
Your obedient servant,
FRANK T. MADGE,
Medical Officer of Health.

NATURAL AND SOCIAL CONDITIONS OF THE DISTRICT

Area of the Urban District in acres	49,917
Population (Registrar-General's mid-year estimate) ...	5,490
Inhabited Houses	1,762
Rateable Value	£55,603
Product of a Penny Rate	£221
Rate in the Pound levied in 1952-3	22/8d.
Of which the County Rate was	17/9d.

The Urban District of Lakes lies in the heart of the English Lake District and is the nucleus of the National Park. About three miles of the north-eastern shore of Windermere Lake is within the District and the inhabited areas are sited along three main valley systems which radiate from the Lake. To the west lie the Langdales, to the north the dales of Rydal and Grasmere, and to the north-east the Troutbeck Valley which leads over the Kirkstone Pass to the geographically detached dalehead of Patterdale and Glenridding at the head of Ullswater Lake. Your Council Offices are situated at Ambleside.

The valley bottoms lie between 150 and 300 feet above sea level in the major western portion, and in the Patterdale area at about 500 feet. The massive crags and fells rise steeply to altitudes of between two and three thousand feet, comprising some of the finest mountain scenery in Great Britain. Some of the valleys are wooded but the fellsides are majestically covered only by bracken and heather. The stone-built houses are scattered irregularly along the valleys, with only two large villages or townships of any size, Ambleside and Grasmere. The District is therefore essentially rural in character. These geographical features determine the natural lines of communication and therefore influence the spread of infectious diseases.

The geology of the District is almost entirely confined to the Borrowdale Volcanic Series of lavas, tuffs and agglomerates with some igneous intrusions. The lavas are mainly andesites with rhyolites at various horizons. The fragmentary rocks resulting from explosive eruptions vary from fine-grained tuffs and ashes to course agglomerates and brecchias. Lateral pressure has converted some of the tuffs into slates suitable for roofing. In the extreme south of the District the thin bands of the Coniston limestone and Ashgillian series are interposed between the Borrowdale series and the commencement of the Silurian Rocks which stretch away to the South of the County. Workable deposits of non-ferrous metals, particularly lead, are found in the north-eastern part of the District. These geological characteristics

are of great significance in the supervision of water supplies, sewerage and occupational diseases as well as affecting the economics of the District.

The climate is mild and equable in the valleys, and invigorating on the fellsides and uplands. The dales of Rydal, Grasmere and Troutbeck are sheltered from the prevailing westerly winds, and, being open to the south provide full access to sunshine. The Langdales are more exposed, and Patterdale, although sheltered, has a northerly aspect. Temperature gradient inversions are occasional in the spring and autumn but are soon dispelled in the mornings. The rainfall averages 70 inches a year, but this figure is due more to the heaviness of the rain when it occurs rather than to an undue proportion of rainy days. Snow may be expected for one or two weeks in the late winter.

The District is predominantly a holiday centre for climbing, walking and enjoying the scenery of mountains and lakes, and there is a large influx of seasonal visitors which raises the population to an estimated peak of approximately 8,000. This tourist trade has been imposed upon the basic characteristics of agriculture, mainly sheep farming, and many of the small local industries are therefore ancillary to agriculture and the holiday trade. There are also slate quarries and lead mines which provide a certain amount of local employment and stability to the District to help balance the fluctuating conditions of the seasonal trades.

Opportunities for local employment help to check the drift from the countryside. These industries together with the trade associated with the hotels and boarding houses, have provided a limited economic security and local prosperity which is a most important factor in the maintenance of public health.

STAFF.

Name.	Qualifications	Office	Whole or Part Time	Other Offices
F. T. Madge ...	M.D., Ch.B., M.R.C.S., L.R.C.P., D.P.H.	Medical Officer of Health	Part	M.O.H. Combined County Districts of Westmorland
J. H. McAdam ...	Cert.S.I.B.	Sanitary Inspector	Part	Building Surveyor
S. B. Grimes ...	—	Clerk	Part	—
B. M. Machell ...	—	Clerk to Medical Officer of Health	Part	Clerk to M.O.H. Combined County Districts of Westmorland

STAFF CHANGES

There have been no staff changes during 1952.

VITAL STATISTICS.

The following extracts are made from information supplied by the Registrar-General, with figures for 1951 for comparison.

Area of the District in acres 49,917

			1951	1952
Estimated civilian population (mid-year)		...	5,529	5,490
Live Births.	Legitimate—	males	22	24
		females	29	26
	Illegitimate—	males	2	1
		females	—	1
	Total		53	52
Rate per 1,000 population			9·6	9·6
Rate for England and Wales			15·5	15·3
Stillbirths.	Legitimate—	males	1	1
		females	—	—
	Illegitimate—	males	—	—
		females	—	—
	Total		1	1
Rate per 1,000 total (live and still) births		...	18·5	18·8
Rate per 1,000 population			0·18	0·18
Rate for England and Wales			0·36	0·35
Deaths.	Males		41	36
	Females		48	47
	Total		89	83
Rate per 1,000 population			16·4	15·1
Rate for England and Wales			12·5	11·3
Infantile Deaths (under 1 year)				
	Legitimate		—	1
	Rate per 1,000 legitimate live births...		—	20
	Illegitimate		—	—
	Rate per 1,000 illegitimate live births		—	—
	Total Deaths under 1 year		—	1
	Rate per 1,000 live births		—	19·2
	Rate for England and Wales ...		29·6	27·6

Neonatal Deaths (under 1 month)		
Total neonatal deaths	—	1
Rate per 1,000 live births	—	19·2
Deaths from Diarrhoea and Enteritis (under 2 years)		
Deaths	—	—
Rate per 1,000 live births	—	—
Rate for England and Wales ...	1·4	1·1
Maternal Mortality		
Total Deaths	—	—
Rate per 1,000 total (live and still) births	—	—
Rate for England and Wales ...	0·79	0·72

Deaths from Certain Causes :—

	1951	1952
Cancer	12	6
Measles	Nil.	Nil.
Whooping Cough	Nil.	Nil.

The main causes of death were :—

Heart Disease	26
Vascular lesions of nervous system ...	17
Cancer	6

COMMENTARY ON THE VITAL STATISTICS

Population

The Registrar-General's estimate of your civilian mid-year resident population was 5,490 but the provisional figure for the 1951 Census was 6,094 which illustrates the forecast made last year that there would be a material discrepancy between the two sets of figures. It would be fruitless to discuss the implications of the change until the final census figures are available.

One salient point is undisputed—your birth rate is well below your death rate. You are a naturally declining community—declining at a much faster pace than the rest of the nation, and the reasons are not difficult to see. The residential charm of the District will attract all the immigration you need to maintain your numbers.

Birth Rate

Your birth rate of 9.6 is a slight improvement on the 1951 record minimum. For many years it has been deplorably low, a mere half to two-thirds of the national rate.

Apart from the local economic circumstances the effect of the two wars aggravated the position. The present child-bearing and begetting population suffered twice. There is a sad gap in their ranks due to the unborn casualties of the first world war, and at the onset of the second war their marriages were delayed, prevented or frustrated at the time of their maximum fertility. If your native community is to survive you must raise your birth rate well above your death rate, and to do that you will have to recapture and hold the faith of your young people in country life. It seems probable that the National Park will have a sterilising effect upon the community.

Still-birth Rate

The still-birth rate was statistically insignificant.

Death Rate

Your death rate was above the national average, but the general trend since 1935 has been almost identical with the rest of England and Wales.

Infantile and Neo-natal Deaths

There was one infant death. Your figures are too scanty to carry statistical significance on their own merits but as they run parallel with the figure for England and Wales I feel that they do reflect a very satisfactory improvement in child-care by the local doctors, nurses and above all, by the young mothers in their homes.

Maternal Mortality

Your clean record has been happily maintained.

NOTIFIABLE DISEASES TABLE.

Disease.	Total.	Ages.												Admitted to Hospital.	Deaths.
		1–	1–	2–	3–	4–	5–	10–	15–	20–	35–	45–	65–		
Scarlet Fever	2	—	—	1	—	—	—	1	—	—	—	—	—	2	—
Pneumonia	2	—	—	—	—	—	1	—	—	—	—	1	—	—	—
Measles	103	—	4	5	12	9	42	29	1	1	—	—	—	—	—
Whooping Cough ...	35	—	3	1	3	4	21	—	—	1	1	1	—	—	—
Food Poisoning	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—
Total	143		8	7	15	13	64	30	1	2	1	2	—	2	—

PREVALENCE AND CONTROL OF INFECTIOUS AND OTHER DISEASES

Public Health Act, 1936, *Sections* 143-170.
National Health Service Act, 1946, *Part III.*

The first quarter of the year was marked by an outbreak of whooping cough in Patterdale and Glenridding where 35 cases were reported. I consider that this outbreak was associated with the concurrent epidemics in Kendal and around Penrith.

The second quarter of the year produced a very sharp outbreak of measles in Grasmere. One case in April was followed at the beginning of May by four others, and then ten days later the epidemic flared up to show two waves of infection, again 10 days apart, each wave providing 28 cases, after which a few irregular cases brought the outbreak to a close, probably due to there being no more susceptible children.

The Grasmere epidemic led to a small outbreak of a dozen cases of measles in Ambleside in May and June, and another similar small outbreak occurred in the late autumn. Fortunately there were no deaths in any of these epidemics.

The control of notifiable diseases remains one of the most important tasks in my department, and in a holiday district it is necessary to review a wider field for the control of infectious diseases which may be imported by our visitors.

Whooping Cough

Whooping cough is slowly being brought under control. Artificial immunisation against the disease is now available and the treatment of established cases seems to be improved by the new synthetic antibiotic drugs. There seems every hope that this very distressing illness in little children can be virtually wiped out.

Measles

Measles remains a disease which visits the area with periodical regularity. No effective artificial immunisation is yet available, but the use of antibiotic drugs has greatly reduced the incidence of pneumonia and ear disease complications in measles.

Scarlet Fever

Scarlet fever has been insignificant for many years, and the illness is now normally nursed at home. Research has shown that scarlet fever is merely one manifestation among many of infection with the haemolytic streptococcus organism. Its virulence has diminished during this century and treatment is more effective in preventing complications. Scarlet fever is repressed rather than conquered.

Diphtheria

Diphtheria has not occurred since 1947. Artificial immunisation appears to have almost abolished diphtheria, and I hope that serious epidemics of this deadly disease have been banished for all time.

I wish to thank the local doctors and nurses for their efforts to secure artificial immunisation of every baby before the first birthday and the school medical officers for their part.

Dysentry

Notifications of the Sonne type of dysentery have increased in recent years. This is probably because extended laboratory services have facilitated more accurate diagnosis of the group of diseases which are characterised by diarrhoea. Sonne dysentery has been widespread throughout the north-west of England, and its control lies mainly in securing clean food handling and the maintenance of higher standards of sanitation.

Smallpox

Smallpox remains an increasing threat due to the combined effect of apathy towards vaccination and enthusiasm for airborne travel. I think that people do not realise that we are less than 24 hours away from areas of constant ravage by this dreadful disease.

Smallpox swept the country from time to time until some 50 years ago when widespread vaccination checked its progress and vigilance at the sea ports prevented its importation. A generation has grown up which is blinded by the complacency of false security, not yet realising that air travel has made smallpox once more a very real risk to the community.

Persons from abroad, who may be incubating the disease, arrive in this country well within the incubation period. It is most important that all children should be vaccinated in infancy, and that adults should keep themselves protected, rather than rush in belated panic for mass vaccination when an outbreak occurs.

The present low vaccination state of the population is inviting trouble from this disfiguring and often fatal disease. I cannot stress too strongly the wisdom of taking obvious precautions against preventable diseases.

Hospital and Ambulance Arrangements for Infectious Diseases

National Health Service Act, 1946. *Parts II and III.*

Hospital accommodation for infectious diseases is provided by the Regional Hospital Boards, Manchester and Newcastle, at Lancaster, Penrith and Carlisle. Smallpox will be admitted to the Ainsworth Smallpox Hospital near Bury.

Ambulance transport for cases of infectious disease is provided by the Westmorland County Council.

Disinfection Arrangements

Disinfection facilities for clothing and bedding are not very satisfactory owing to the lack of a steam disinfector. Reliance is therefore placed usually upon disinfection with formaldehyde in the patient's house. Disinfection of premises and other chattels is carried out locally and presents no special problems.

TUBERCULOSIS

Tuberculosis is the most important communicable disease of our time. Its prevention is primarily dependent upon social and economic factors in the general community, and secondarily upon the management of the established case. Your Council's functions are three-fold : to investigate the source of infection, to prevent the spread of infection, and to remove conditions favourable to infection.

Investigation of the source of infection relies upon notification. Inquiries are made into the home and working conditions of the patient and into any outside possible sources of infection. In this way occasional infectious respiratory cases can be discovered and in certain cases of non-respiratory involvement infected milk can be traced back to tuberculous cows. A more detailed medical examination of members of the patient's family is undertaken by the Regional Hospital Board.

Additional assistance in investigating the source of infection is provided by the Mass Miniature Radiography Units of the Regional Hospital Boards, which offer free X-ray examination in each locality from time to time. It is hoped that the public response will be good and that not only will it reveal the infectious cases but will enable early cases to be offered the best possible chances of recovery.

Although the Manchester Regional Hospital Board's Unit visited the area during the early part of 1951 it was most regrettably impossible to find a suitable hall in Ambleside and only a few persons from your District troubled to travel to Windermere for the examination. I hope that more strenuous efforts will be made next time for the Unit to visit Ambleside.

The Newcastle Regional Hospital Board's Unit visited Glenridding during 1952, and 131 people from the head of Patterdale Valley took the opportunity of being X-rayed. Even in this small community one active and two inactive cases of pulmonary tuberculosis were discovered. Other findings included six cases of pneumoconiosis (silicosis), one case of a chest cancer, and quite a variety of less serious abnormalities. It was a valuable visit indeed.

TUBERCULOSIS TABLE.

Age Periods.	New Cases.				Deaths.			
	Respiratory.		Non-Respiratory.		Respiratory.		Non-Respiratory.	
	M.	F.	M.	F.	M.	F.	M.	F.
0	—	—	—	—	—	—	—	—
1	—	—	—	—	—	—	—	—
5	—	—	—	—	—	—	—	—
15	—	—	—	—	—	—	—	—
25	—	—	—	—	—	—	—	—
35	—	—	—	—	—	—	—	—
45	1	—	—	—	—	—	—	—
55	—	—	—	1	—	—	—	—
65	—	1	—	—	—	—	—	—
Total ...	1	1	—	1	—	—	—	—

The number of tuberculous patients on the register at the year end were :—

Respiratory	12
Non-respiratory	4
	16

Preventing the spread of infection depends mainly upon the management of the established case. Ideally, the infectious patient should be isolated, but the serious shortage of beds and nurses in sanatoria causes many cases to remain outside. This is usually to the detriment of the patient and it creates a very serious reservoir of infection leaking into the general population.

If isolation in hospital is denied, reliance has to be placed on education of the patient in personal precautions, and your Council endeavour to ensure that the home conditions are such that an infectious patient is not compelled to share a bedroom with other members of the family who are still healthy, and where possible to rehouse young families who are sharing a house with infectious tuberculosis patients—rather an inadequate and pathetic makeshift.

Prevention of tuberculosis extends beyond the home. Your Council have the duty of ensuring that an infectious patient is not employed in dairying or food handling, and persuasion is occasionally needed to avoid the undesirability of such a patient carrying on certain other employment which would create an especial risk to susceptible contacts. In many other workplaces control is impotent and spread may be unchecked. Perhaps immunisation with B.C.G. vaccine may protect susceptibles.

Removing conditions favourable to infection embraces the whole range of environmental preventive medicine. Housing and nutrition are probably the major factors. Slum clearance, reconditioning of houses, relief of overcrowding are the first steps, for tuberculosis thrives in damp, dark, congested dwellings, whether they be sited in an urban slum or rural solitude. Nutrition is undoubtedly significant in the prevention of infection and in the early arrest of tuberculosis. Protective foods are expensive to buy, medical treatment is free.

The increase in attested herds, the eradication of tuberculous cattle, and systematic meat inspection are making notable progress in removing conditions favourable for bovine infection to be transmitted to man.

The supervision of dusty trades under the Factories Act reduces the risk of lung damage which may predispose to tuberculous infection, and the workers in these occupations are especially surveyed by the X-ray units.

Your Council have therefore very considerable responsibilities in accepting the challenge of tuberculosis, but their powers would be considerably enhanced by better co-ordination with the various other bodies who are allies in this cause.

HOUSING

Housing Acts, 1936 and 1949

Under the Housing Acts your Council has a duty to consider the general housing conditions in your district, to ascertain whether any are unfit for human habitation, and to assess the need for further houses. You have powers to deal with unfit houses, powers to provide new houses for all classes, and various powers and duties in the management of your Council's housing estates. Good housing conditions are an integral part of public health.

Present Housing Position

Housing Act, 1936. *Section* 57.

There are 1,762 inhabited houses in your District. With an estimated population of 5,490 the average number of persons per house is 3.1. This figure is purely hypothetical since many of the better houses have only one or two occupants, and a number of the smaller houses are occupied or let furnished only in holiday times by absentee landlords.

It is probable that the dalesman's houses have an average of at least four persons per house, which is not excessive for a normal-sized family and there is probably little overcrowding within the strict definition of the Housing Act, which assumes that living rooms are used for sleeping purposes, and that the sexes can be segregated irrespective of age, health and family relationship. Assessment of overcrowding based on a minimum bedroom standard is long overdue and would provide a more realistic picture of the domestic difficulties which are reflected in the application lists for new houses.

It is probable that overcrowding is temporarily increased during the peak of the holiday season, but no certificates under Section 61 of the Housing Act 1936, have been granted by your Council to authorise exceeding the permitted numbers.

Since most of the smaller property is very old the structural state is not good. Many of the houses suffer from rising dampness due to the absence of damp-proof courses which cannot be remedied without extensive works in under pinning. The sound methods of the original construction have ensured that deterioration of the structure is a very slow process, but heavy repair costs and low rentals have made housing repairs unprofitable to the landlords.

Apart from structural defects there is a general lack of the ordinary decent amenities in most of the smaller houses. My report of 1947 sets out the detailed figures in each Parish in your District. There is a lack of internal water supplies, of proper washing facilities, of water

closets and of electricity. Even in Ambleside and Grasmere only half the houses under £22 rateable value have fixed baths.

These conditions may appear quaint and interesting to casual visitors, but they are disgusting and disheartening to those of your folk who have to live in them. Your Council is vigorously striving to bring water, sewerage and electricity to the valleys as the first essential step towards cleaning up the District.

The Rural Housing Survey results were presented to your Council in 1947 and I hope that the money you spent on making that detailed survey will not be wasted by filing away and forgetting the Report which was a starkly realistic social record of your home conditions, which have not since then shown any change for the better.

Slum Clearance

Rural slums may be more picturesque than city slums, escape into the beautiful countryside may be easier, but within the four walls of a house the distinction is not so evident.

The delayed start in new building makes any serious attempt at slum clearance in your District a hollow mockery. The best that can be done is to deal with those houses which have decayed to the stage of being structurally dangerous, and to commence action against any particularly bad houses which are brought to especial notice.

The Housing Act, 1949, offers financial grants to owners to recondition existing houses in a comprehensive manner, and I hope that owners of Class 4 and 5 houses will consider the possibilities of each house with a view to maintaining the architectural traditions of the District and making decent houses for our dalesfolk.

The Act also gives your Council extensive powers to acquire and recondition suitable sub-standard houses. This might be a lot quicker and cheaper than new building but it would meet only part of the demand. Courage would be required to reap full advantages from such schemes.

Closing Orders

Housing Act, 1936. *Section* 12.

No closing orders were made during the year. One such order is on the register of local land charges.

Undertakings

Housing Act, 1936. *Section* 11.

No undertakings were received during the year.

Undertakings not to use houses for human habltation were in force on 13 premises.

No improvement grants were made under the Housing Act, 1949.

Demolition Orders

Housing Act, 1936. *Section* 11.

No demolition orders were made during 1952. One demolition order is outstanding on Island View Cottage, Grasmere. This order was made by your Council in 1937, but was not enforced. The house is now illegally occupied. This is not satisfactory.

Clearance Areas

Housing Act, 1936. *Section* 25.

An outstanding clearance order exists at Township, Patterdale. There are six houses in this Order. One is empty, one is occupied by an original tenant who refused the offer of a Council house, and four were allowed to be re-occupied by evacuees during the 1939-45 war on the understanding that they would return to their own area after the war. The houses are not occupied under licence nor requisitioned under Defence Regulations, and their position is now irregular. I must recommend that all these persons should be rehoused as soon as possible.

Fit Houses Requisitioned

Defence Regulation 51.

Two houses are occupied under your Council's powers of requisition. Although many small houses are occupied only in holiday times by absentee owners or let furnished to casual visitors, most requisitioning proposals have been met with prompt evasive action.

Estimated Requirements

Housing Act, 1936. *Section* 71.

In conjunction with your Building Surveyor I estimate that the following figure will provide an approximate guide for your future planning of housing requirements :—

Replacement of condemned houses still occupied	7
Replacement of Class 5 houses (condemnable)	88
Provision of a house for each family unit.	55
	150

I have exact details of the location of the 95 condemned and condemnable houses. The figure of 55 needing a separate home was obtained from the housing lists.

Your waiting list for new houses at the beginning of 1952 was 131, comprising 55 families without a separate home and 76 families who desire to change their present house. This should be a powerful stimulus for action.

In addition to these 150 houses required there is a demand from persons now resident outside the area for houses nearer their work within the Lakes Urban District.

Local Authority Schemes

In Ambleside, land was bought for between 50 and 60 new houses at Greenbank. This is a very pleasant central site which allows for future expansion. Good progress was being made at the year end.

In Grasmere, a new site was bought on the road to Easedale for between 20 and 30 houses. These will be in addition to the 10 houses being erected at Benfield. This site was approved in principle by the Ministry of Health, and your Architect has prepared layout plans which have been approved by the County Planning Department. No progress was made with this scheme during the year.

In Great Langdale, a site was selected at Chapel Stile for about 20 houses, approvals obtained and a layout prepared. No further progress was made with this scheme during the year.

In Patterdale, a site was selected at Glenridding for about 20 houses and a layout was prepared. Approvals were being sought at the year end.

The selection of centrally placed sites I feel will be particularly important for old people who need some community help in the time of their difficulties, but who enjoy the pride of their independence at other times.

Housing Building Progress

Since the war your Council have completed 28 houses. Eight of these were occupied in 1950 at Blue Hill, Ambleside, and the other ten were completed at Grasmere during 1951, and ten at Greenbank, Ambleside in 1952.

At the year end there were 27 houses under construction at Greenbank, Ambleside, and four further houses were completed by conversion at the old St. Anne's home, Ambleside which your Council purchased for this purpose.

No houses were completed during the year by private enterprise. The post war total remains at 6, but a further 6 were under construction at the year end.

Tenants Selection

The present method of selecting tenants for your Council houses is for your Housing Committee to consider all the applications and then select the tenants whom they consider are most in need of being rehoused. No points system is in operation and there is no anonymity.

Housing Management

Your Council now own 85 houses. Routine repairs and maintenance are carried out by local contractors. Your present estates do not justify the employment of direct labour, but in the years to come the number of your houses will be increased and the maintenance will require constant attention and you may be faced with considerable reconditioning of the rural houses.

The rents of your Council houses vary between 8/3d. and 22/6d. exclusive of rates. From these figures you will see that the present day building costs will not enable you to maintain low rents on your new houses unless there is a substantial increase in the rate of Government subsidy.

The rateable value of your Council houses varies from £9 to £19.

The examination of rentals and rates may not seem at first to have much to do with public health, but it does have considerable significance. It is not unknown for persons who have been rehoused from poor quarters into modern Council houses to have to pay their rent and rates from the portion of their income which rightly belong to the purchase of food. Domestic economy can effect the general standard of the public health almost as much as environmental conditions, and some attempt must bc made to maintain a balance between these conflicting factors.

Verminous Houses

Public Health Act, 1936. *Section* 83-85.

No action was necessary during the year.

Nuisances and Notice re Dwellings

Public Health Act, 1936. *Section* 91-100.

During the year the following action was taken :—

Preliminary Notices served	149
Statutory Notices served	0

In no case was it necessary to obtain an abatement order from the Court. There was a general desire on the part of owners to remedy the defects.

Dangerous Buildings

Public Health Act, 1936. *Section* 58.

No action was taken during the year.

Tents, Vans, Sheds and Moveable Dwellings

Public Health Act, 1936. *Sections* 268-269.

No licences were in force during 1951 for camping sites usable both summer and winter, and three licences for summer use only.

Seven licences were in force during 1952 for individual caravans usable both summer and winter. These were used as permanent dwellings. Three licences were in force for summer use only.

An attempt is made to make licences reconcile with planning approval.

Your Council imposes conditions upon the grant of licences and requires their annual renewal. As this District is the nucleus of the National Park it is most desirable that strict but unobtrusive supervision should be exercised over camping sites to ensure that the natural beauty of the country is not despoiled by the careless few.

Unlicensed camping sites are scattered throughout the entire District, but very little nuisance arises from casual campers except on White Moss Common, where considerable fouling occurs in summer time. Elsewhere the improvised sanitary arrangements and refuse disposal cause little nuisance, but casual campers take water from polluted becks at their own risks.

Parks and Public Open Spaces

Ambleside, Grasmere and Glenridding have formal parks or recreation grounds which are much used by children and elderly persons for whom the wild nature of the fells is too strenuous. Many of these places have beautiful vistas of the surrounding district and are sheltered from the prevailing winds.

Bathing Facilities

Your Council reconditioned and re-equipped the changing and life-saving provisions at Waterhead where a shallow portion of Windermere Lake is used for bathing.

WATER SUPPLIES.

Water Act, 1945.

General

The public water supplies are installed in six areas of your Urban District, Ambleside, Grasmere, Hartsop, Chapel Stile, Glenridding and Little Langdale. The quality of the Ambleside and Grasmere supplies is satisfactory after treatment but the Chapel Stile supply is variable. The results of laboratory examinations of the raw and treated waters are set out in Appendix " A."

The Grasmere Supply is unfailing in quantity. The Ambleside supply is generally adequate except in periods of drought, when the grossly excessive consumption makes it necessary to purchase water from the Thirlmere aqueduct of Manchester Corporation.

The Chapel Stile supply runs very short in dry weather but your Council has a chlorinated ancillary supply from the main beck.

The Hartsop supply completed in 1949 and the Little Langdale supply in 1951, seem to be meeting the local needs.

Ambleside Supply

The source is Scandale Beck, which is upland surface run-off from the rocks of the Borrowdale volcanic series. The gathering ground is uninhabited, but sheep grazing throughout the year and cattle grazing in summer-time occur above the intake. The beck comes down alongside a popular walking route, and, although pollution is minimal and dilution is great, the water is strained through a copper screen and chlorinated. A covered storage reservoir of 300,000 gallons storage capacity has a top water level of 442 O.D.

The supply to Ambleside and parts of the parishes of Rydal and Loughrigg is thence by gravitation. The average daily consumption is about 350,000 gallons or about 143 gallons per head for 2,450 estimated consumers in 754 houses, which suggests enormous wastage. The headworks were constructed in 1881.

Grasmere Supply

The source is Tongue Ghyll, which is also upland water from similar rocks on an uninhabited catchment area. Sheep grazing occurs throughout the year, and the ghyll is followed by the track leading down from Grisedale Hause, much used by holiday walkers. The water is therefore filtered through limestone and chlorinated. There is a covered storage reservoir nearby of 100,000 gallons capacity, with a top water level of 649 O.D. The supply to Grasmere township is thence by gravitation, and the average daily consumption is about 100,000 gallons

or 118 gallons per head for 850 consumers in 259 houses. The headworks were constructed in 1901.

Chapel Stile

The main source is Meg's Ghyll, which is also upland water from Borrowdale volcanic rock. The gathering ground is uninhabited, but light sheep-grazing occurs throughout the year. The water is untreated and is very variable in bacteriological quality. There is a small tank of 5,000 gallons capacity by the intake, but there is no storage reservoir. The supply to the villages of Chapel Stile and Elterwater is by gravitation. The average daily consumption is about 8,000 gallons or 200 gallons per head for 500 estimated consumers. Although there is excessive waste the storage capacity is so small that the supply fails in time of drought.

The emergency source is water pumped from a sump-hole in the valley gravel bed near New Bridge into the rising main of the Meg's Ghyll system. The water is chlorinated and mixed with the water from the other source. It is probable that this ancillary supply will be required only in times of extreme drought, but I see no reason why it could not be used for meeting any increased demand caused by extension of the present system of mains. A major scheme for the Great Langdale valley is also under consideration, and if it is adopted it will supersede Meg's Ghyll and the emergency ancillary supply.

Hartsop

The source is from springs on the fellside above the hamlet. Sheep grazing occurs on the uninhabited catchment area. The water is fed from catchpits into a concrete tank of 11,000 gallons capacity, with a top water level of about 690 O.D. The water flows by gravity untreated to the hamlet. The headworks were taken over and reconditioned by your Council in 1949.

Glenridding

During the protracted drought in 1949 the private supply systems in Glenridding virtually failed and in order to safeguard the public health at the height of the holiday season your Council took emergency measures to instal a temporary supply.

With the generous assistance of the Mining Company their high pressure turbine feed pipe at Rattlebeck was tapped and your water Engineer laid a pipe across the fields to couple up with the existing distribution mains. This prompt action saved Glenridding from much discomfort and possibly from disease. Until the main scheme matures

your Council are retaining this untreated upland surface source as an emergency measure.

Little Langdale

The source is Grains Ghyll, which is upland surface water from volcanic rocks. The gathering ground is uninhabited but grazed. The water is collected into a concrete tank of 7,000 gallons capacity, with a top water level of 620 feet O.D. The water flows by gravity untreated to the consumers. The works were completed in 1951.

General

Outside the areas of the public water supplies conditions are generally poor. There are a few small privately-owned systems of varying quality, and the rest of the District relies upon becks, small runners, superficial springs, and the surface drainage catchpits, unreliable in yield and many of undesirable quality.

No comprehensive survey has been made of individual private water supplies, and staff shortage precludes one in the near future.

Shortage of water is brought to my notice in times of over a fortnight's dry weather by the frequent complaints of distress from the populated areas of Troutbeck and Patterdale. It is ironical that a district with 70 to over 100 inches of rain in a year should be short of water, but the reason is that the impervious volcanic rocks cause a rapid run off and the storage capacity of privately-owned systems has been dictated more by economy than foresight. The quality of the average private supply fluctuates widely, and I can do no more than warn the users that they drink it at their own risk, that they should have it tested for purity at regular intervals, and that if in doubt they should boil it.

Although your Council prepared schemes for improving the worst areas of Patterdale and Troutbeck there have been many difficulties, both national and local, during the 17 years of your existence, and very little effective progress has been made.

The frustrations have been a source of sorrow to your Council and have aroused impatience or despair in the folk who live in these areas. They have prevented the bringing of the amenities of a safe and sufficient water supply and the decencies of a twentieth-century sanitation system into the more populous parts of your rural areas. I hope that when controls and restrictions are removed we shall be allowed to set our houses in order.

Water Schemes

The Patterdale Scheme was commenced in the days of the West Ward, before the parish was transferred to form a constituent of the

Lakes Urban District in 1935. A scheme was drawn up to use water from a group of springs above Braesteads Farm in Grisedale to supply both Glenridding and Patterdale. Negotiations for the acquisition of the source were protracted but by 1949 the scheme was submitted to the Ministry of Health for approval and loan sanction. The Public Inquiry was held during 1952 but the Minister's decision had not been disclosed at the year end. Meanwhile Glenridding has been partially helped by the temporary system installed in 1949.

Your Council's scheme for Great Langdale seems to have been shelved since the Little Langdale system was constructed.

The Troutbeck water supply has been discussed several times, with a special revival of interest during the war years. This village is in the area of supply of Windermere Urban District, but your Council are at present taking steps to have it transferred to your own area of supply. This village is dependent for water upon a series of catchpits, becks, and small private installations which are very unreliable in yield, almost dry-out in times of drought, and whose quality I suspect is very variable. Your Council's consulting engineers prepared a scheme during 1949 for supplying the village from Woundale Beck. The approval of the County Council was obtained, but at the year end the scheme had not reached the stage of submission to the Ministry of Health, due mainly to local disagreements. I think that Troutbeck is the only village of any significant size in Westmorland which is now without a piped water supply.

Safeguarding of Purity

A scheme for the general safeguarding of the purity of the public water supplies was instituted during 1948. The elementary precautions of the medical examinations of workmen and the regular laboratory examination of the water should protect a popular holiday area from serious water-borne diseases, but staff shortage prevented the proper carrying out of the scheme.

SEWERAGE

Disposal Methods and Works

Public Health Act, 1936. *Section* 15.

Public sewerage systems are at present very limited in the District, and I have to advise your Council that extensions and new installations are desirable in several places, particularly in view of the proposed new water supplies.

Ambleside is the only area within your District which possesses a sewage disposal plant of any size. The works are not functioning efficiently and the final effluent is very variable in quality during normal working and extremely bad during the weekly flushing of the plant, which causes massive pollution of the river with untreated sewage.

Your Council's consulting engineers submitted to you during 1949 a scheme for major reconstruction of the works, but as the cost was very high, an alternative proposal was made to effect certain improvements and urgent repairs which may at some future time be incorporated in the larger scheme. These repairs have not yet been commenced.

Chapel Stile is sewered into a large septic tank which has an outfall into the river.

Troutbeck has a short length of sewer which serves only a few houses and leads into a small septic tank.

Patterdale is sewered by a short length of piping into a septic tank in Robinson's field.

No public sewerage exists in Grasmere, Glenridding, Rydal and Little Langdale, nor in the more scattered rural hamlets and townships.

Grasmere already has a public water supply and the sewage disposal at present is into individual cesspools which are emptied yearly by your Council. The effluents pass into the gravelly subsoil and cause little nuisance, except on the harder land bordering the valley bottoms.

Glenridding was considered during 1949 in view of the proposed water supply and your Council favoured the extension of the system of grouped septic tanks. In this way sewage disposal has now been secured for the very welcome conversion of privy middens into water closets and yet another village has been substantially cleaned up.

Prevalence of Water Closets and Other Methods

Water closets have been installed mainly in the areas which are served by public sewers and in the better type of house where private sewage systems have been made. A survey made during 1947 revealed the following position :—See Table overleaf.

Since that date the only significant improvements have been made in Glenridding. Langdales, Patterdale and Troutbeck are the worst parishes, and as your District is the nucleus of the National Park and will receive an increasing number of holiday visitors from this country and overseas, it is most desirable that the extension of your sewerage schemes shall be followed by the conversion of earth-closets, privies and privy middens to more modern hygienic water-closets.

Parish	Total Houses	With W.C.		Without W.C.	
		No.	Percentage	No.	Percentage
Ambleside	710	698	98·3	12	1·7
Grasmere	274	219	80	55	20
Langdales	203	86	43	117	57
Rydal & Loughrigg ...	139	104	75	35	25
Patterdale	251	146	58	105	42
Troutbeck	131	86	66	45	34
TOTALS	1,708	1,339	27·8	369	21·5

Conversions

Public Health Act, 1936. *Section* 47.

Five conversions to water closets were made during the year and no grants were made by your Council for this purpose.

Public Conveniences

Public Health Act, 1936. *Section* 87.

Public conveniences are situated at Ambleside, Grasmere and Waterhead. Plans for the erection of conveniences at Glenridding were made before the war, but it has not been possible to commence the work. In view of the large number of holidaymakers who arrive in Glenridding from the Lake steamers, it is most desirable that proper sanitary arrangements should be available.

PUBLIC CLEANSING

Refuse Collection

Public Health Act, 1936. *Section* 72.

Domestic refuse is collected from the whole of your District with the exception of a few detached and isolated dwellings. Your Council's own vehicle and staff are used for the work in all but the Hartsop area, where refuse is collected by a private contractor.

Refuse Disposal

Public Health Act, 1936. *Section* 76.

Disposal of refuse is carried out by partially controlled tipping on four sites at Ambleside, Grasmere, Patterdale and Brathay.

The whole matter of refuse disposal has always been a difficulty in your District. The natural beauty of the country ought not to be desecrated by multiple dumps of ugly human refuse, yet the refuse must be put somewhere and the land does not yield enough covering material to hide and minimise the consequent nuisances of unsightliness,

smell, rats and fire. In the days of horse-drawn refuse carts and local contractors it was obviously imperative to use multiple local tips but now motor transport has changed the situation. You need more labour to conduct your tips properly and you may need to acquire covering material. Controlled tipping ought to be universal in a National Park, and the creation of serious nuisances is indefensible. I think you should aim at centralising your tips, thus limiting the nuisances and favouring better supervision of the tip faces.

The Ambleside tip is not very suitably situated in the centre of a popular holiday resort, and the amenities of the township would be improved by some alternative arrangements. The tip has long since become full and is now rising well above the level of the adjoining land. I hope that it will be neatly finished off and that all the Ambleside refuse will soon be diverted to Brathay.

The Grasmere tip is well screened from view and away from the township. It is getting rather full and is in a poor state. It would be a mistake to let it rise above the level of the surrounding land, and I consider that it ought to be finished off to levels, and a new site chosen without much delay, or else the refuse should go to Brathay.

The Patterdale tip at Millmoss Common is naturally screened from the road and offers space for a considerable time to come, but it needs much more supervision to abate nuisances.

The newly acquired tipping site at Brathay was started during the year. It offers space for a very long time, and as it lies within the area of another local authority I hope that controlled tipping technique will be observed to the standards set by the Ministry of Housing and Local Government. It will be necessary to start in the manner in which you mean to go on.

Salvage of Waste Materials

Salvage Recovery Order, 1940.

Salvage was discontinued at the latter end of 1949 and has not been recommenced.

Street Cleansing

Public Health Act, 1936. *Section* 77.

The work is undertaken by the Highways Department and the streets are well maintained.

FOOD AND DRUGS

Under the Food and Drugs Act, 1938, and the Orders and Regulations made thereunder, your Council has the duty of carrying out specific responsibilities in the registration of certain food premises, in the

supervision of milk distributors and certain dairies, and in the wide field of protection of the public from food-borne diseases. The County Council are responsible for detecting the adulteration of foodstuffs and the supervision of the sale of drugs.

The Act came into force just before the commencement of the late war, and apart from the Milk and Dairies Orders and Regulations which were continued from earlier Acts, its full operation has not yet been locally achieved. The Ministries of Health and Food are sponsoring a vigorous campaign against food-borne diseases, and the proper implementation of the Act should give a greater measure of protection to the public. The co-operation of the catering trade and the education of all food-handlers in a high standard of hygiene will be sought under the wide powers provided by the Act.

During 1950 the Minister of Food confirmed your Council's bye-laws to govern the handling and wrapping of food and the sale of foodstuffs in the open air.

Precautions against Contamination

Food and Drugs Act, 1936. *Section* 13.

Food traders and caterers observe a fairly good standard of cleanliness on the average, but considerable work lies ahead in raising the standard of those who are now below that average. I want to see cleaner food, cleaner premises, and cleaner food handlers.

This aim is of major importance, it will involve my department carrying out your statutory responsibilities with particular diligence, and it will require the education and co-operation of all food-handlers within your Area.

I am confident that this co-operation will be forthcoming. I believe that traders are eager to set their premises in order in the interests of enterprise and competition, and they are anxious to eliminate slipshod methods among their staffs.

Thorough cleanliness in the kitchen is far more important than titivation in the dining-room. No food trader should be ashamed to show the customers behind the scenes, and every customer should be confident that the food he eats is clean and has been cleanly prepared. He has a right to be so protected, and your Council is the guardian of that right.

Food-borne diseases, mild dysenteries, and attacks of diarrhoea and vomiting are not infrequent in our homes and among our visitors. I am confident that higher standards will reduce these preventable diseases.

Ice-Cream Trade

Food and Drugs Act, 1938. *Section* 14.

Ice-Cream (Heat Treatment, etc.) Regulations 1947.

The following premises were registered under Section 14 of the Food and Drugs Act, 1938.

Manufacture by hot mix, cold mix, storage and sale ...	2
Manufacture by cold mix, storage and sale	1
Storage and sale only	25

A comprehensive code of standards for ice-cream factories, plant and retail units was circulated to the traders. The open barrow or cart has been abolished, and the enforcement of the Ice-cream (Heat Treatment, etc.) Regulations, 1947, has greatly improved the technique of manufacture.

Prepared Meats

Food and Drugs Act, 1938. *Section* 14.

The number of premises on the Register under Section 14 of the Food and Drugs Act, 1938, used for the preparation of sausages, potted meats, pressed meat, and pickled foods was 9 at the year end. No particular difficulties have been encountered in these trades.

MILK

Registration of Milk Distributors and Dairies which are not Dairy Farms

Milk and Dairies Regulations, 1949.

Total number of registered Distributors	2
Total number of registered Dairies	2

The retail distribution of milk is both by bottled milk and the old-fashioned loose method. Traders are becoming keener to meet the desire of the enlightened customers for bottling. Milk-round vehicles are maintained in a clean condition. Rationalisation of milk-rounds is still in force, and is not in the best interests of the consumer. It is disappointing that more tuberculin tested milk is not available in the District, but as the number of attested herds increases there will be more opportunities for the public to be supplied.

I think that the day is not far distant when your District will be declared free from bovine tuberculosis and the only milk allowed to be sold will be tuberculin tested milk from attested herds or heat treated milk. Very rapid progress is being made towards that goal, and we should not be distracted by side issues.

Cleanliness of Milk

Food and Drugs Act, 1938. *Section* 68.

No samples of milk were taken for cleanliness during the year. With

my limited staffing resources I intend to concentrate upon safe milk before clean milk.

Pathogenic Organisms in Milk.

Food and Drugs Act, 1938. *Section* 68.

The finding of tubercle bacilli in milk is difficult and one must bear in mind the new cases and deaths in the past years from non-respiratory tuberculosis. The growing popularity of the Attested Herds Scheme and Tuberculin Tested Milk production, together with the pasteurisation of accredited and ungraded milks will gradually reduce this toll of human suffering. More extensive routine sampling will be carried out in future years.

No instances of other disease producing organisms in milk were found. We know that Brucella Abortus, the organism which causes contagious abortion in cattle and undulant fever in man, can be isolated from a good proportion of bulked milk supplies, and it is probable that milk infections constantly occur. No serious cases have been encountered and the veterinary profession is taking steps to inoculate cattle against the disease.

No notices were issued under the Milk and Dairies Regulations prohibiting persons from taking part in dairying activities.

Designated Milks

Milk (Special Designations) Regulations.

Your Council is responsible for the granting of dealers' and supplementary annual licences for the sale of Tuberculin Tested and Accredited milks. The following licences were in force during the year :—

One dealers' Licence for T.T. Milk.

One dealers' Licence for Pasteurised Milk.

Adulteration of Milk and Other Foods

Food and Drugs Act, 1938. *Sections* 1-7.

This matter is the responsibility of the County Council and I anticipate that the County Medical Officer of Health will include in his Annual Report some information relating to this aspect.

Licensed Slaughterhouses and Knackers' Yards

Food and Drugs Act, 1938. *Sections* 57-61.

There are two licensed slaughterhouses but these are not in use on account of the centralisation of all slaughtering under the Milk and Food's arrangements. There are no knackers' yards in your District.

Condemnation of Meat

Food and Drugs Act, 1938. *Sections* 10 *and* 12.

All slaughtering is carried out at the Kendal Abattoir, where the

meat is inspected by the Borough Inspectors. It was, however, found necessary during the year for your Inspector to condemn the following meat which had deteriorated in the course of distribution :—

60 lbs. of Sausages.

Considerable improvement is needed in some of the vehicles used for the distribution of meat.

Condemnation of Other Foods

Food and Drugs Act, 1938. *Sections* 10 *and* 12.

The following foodstuffs were condemned by your Inspector during the year :—

Prepared Food Mix	22½ lbs.
Tea	4 ,,
Tinned Fruits...	81 tins
Tinned Vegetables	13 ,,
Tinned Fish	17 ,,
Tinned Meat	18 ,,
Cooked Ham	6½ lbs.
Tinned Soup	12 tins
Frozen Liquid Eggs...	1 tin

General Sanitary Inspection

Your Council employ one part-time Sanitary Inspector and his salary is apportioned between his sanitary inspection duties and his other duties in a proportion approved by the Ministry of Health. You receive through the County Council, a grant of one half of that apportionment of his salary allocated to sanitary inspection, and this should therefore be the basis upon which his time is devoted to the various duties.

Although the relaxation of the civil building control afforded some relief a very much greater added burden was imposed by your Council accepting delegated powers under the Town and Country Planning Act, 1947.

This involves a volume of detailed clerical work of an imperative nature which is hardly commensurate with the few powers conferred on your Council. The bulk of this work falls upon the same man.

It is difficult to arrange duties in combined appointments in a small local authority, particularly when an inspector is single-handed, and there has to be considerable elasticity to cover all the responsibilities. I am keeping the matter under close review as I am of the opinion that sanitary inspection work is being prejudiced by these other duties.

Your Inspector carries out his duties in a most able manner, and during the year he made 796 inspections on all types of work, but there

is a limit to what one man can do in a day, and we are both anxious to maintain the efficiency of our Department in carrying out your Council's responsibilities.

Tabulated summary of work carried out by the Sanitary Inspector :—

Housing Inspections	104
New Houses	170
Building Byelaws	62
Building Licences	21
Food Premises	18
House refuse removal	34
Factories...	4
Surveys	10
Drainage	122
Infectious Diseases	6
Rooms fumigated	13
Caravans...	28
Miscellaneous	135
Sewerage Disposal	68
Schools	1
	796

Offensive Trades

Public Health Act, 1936. *Section* 107.

There are no offensive trades in the District.

Factories

Factories Act, 1937.

There are 52 factories on the Register. Four inspections were made and no written notices were served. No Legal Notices remained outstanding at the end of the year. No prosecutions were required. No references were made to H.M. Inspector and none were received from him.

No lists of outworkers were supplied to your Council by factory owners and I have no official knowledge of any cases of default in this respect.

There are no basement bakehouses in the District.

Form 572 (revised) was sent directly to the Ministry of Labour and National Service, giving details of your Urban District's administration of the relevant sections of Parts I and VIII of the Factories Act, 1937, in accordance with Section 127 of that Act.

Factory Inspections.

Premises.	Number of Premises.	Number of		
		Inspections.	Written Notices.	Occupiers Prosecuted.
Factories in which Sections 1, 2, 3, 4 and 6 are to be enforced by Local Authorities	15	2	—	—
Factories not included in (1), in which Section 7 is enforced by Local Authority	37	2	—	—
Other premises in which Section 7 is enforced by the Local Authority (excluding out-workers' premises)	—	—	—	—
TOTAL	52	4	—	—

No defects were found.

Shops Act, 1950

18 visits were made under the Shops Act for the supervision of sanitary accommodation, washing facilities, and the maintenance of suitable temperature. Informal Notices were served whenever any contraventions were observed.

Common Lodging Houses

Public Health Act, 1936. *Part IX.*

There are no registered common lodging houses in the area.

Rent Restriction Acts

No action was taken during the year under the Rent and Mortgage Interest Restriction Acts and any contraventions of Section 4 of the Housing Act, 1938, regarding rent book entries were corrected informally.

Smoke Abatement

No action was required.

Laboratory Services

Public Health Act, 1936. *Section* 196.

Satisfactory laboratory facilities were available both at Kendal and Carlisle for all public health services. During 1947 a new scheme was inaugurated by the Public Health Laboratory Service, for the performance of all laboratory examinations of a preventive and epidemiological nature free of charge to the local authority and the patient. This should do much to encourage the freer use of modern diagnostic methods by general practitioners and your Health Department.

National Assistance Act, 1948. Section 47

It was not necessary during the year to deal with any cases requiring removal.

Byelaws

Byelaws on public health matters are in force for :—

Building.

Slaughterhouses.

Food handling.

New Legislation

The Pet Animals Act, 1951, became operative on 1st April 1952.

APPENDIX "A."

LABORATORY EXAMINATION OF THE PUBLIC WATER SUPPLIES.

Nature of Test.	Standards Max.	Ambleside Raw.	Ambleside Treated.	Grasmere Raw.	Grasmere Treated.	Chapel Stile.	Hartsop.	Little Langdale	Glenridding
Pr. *coli* count 37° ...	3–10	20	8*	17	20*	5	+	8	L80 +
Faecal coli/strep. ...	0	+	+	+	+	+	+	+	+
Character	—	—	Clear	Clear	Clear	Clear	—	—	Clear
Reaction *p*H.	—	7.5	8.0	7.2	8.0	7.0	—	7.5	7.6
F. & S. Ammonia ...	.005	.005	.002	2.5	.003	.003	less than .0001	.0016	.003
Albumnioid Ammonia	.008	.026	.011	3.5	.007	.007	,, ,, .0001	.03	.011
Total Solids	—	5.0	4.1	3.2	4.2	6.2	4.3	10.0	4.6
Hardness Perm. ...	—	3.0	2.4	1.1	2.3	1.4	—	5.4	1.8
Hardness Temp. ...	—	1.6	0.2	.4	0.1	3.2	—	1.7	0.0
Hardness Total ...	30	4.6	2.6	1.5	2.4	4.6	—	7.1	1.8
Chlorides	3	.88	.55	.5	.5	.7	.9	.9	.85
Nitrates...	.1	.15	—	—	—	0	.2	.075	0
Nitrites	0	0	—	—	—	0	.0005	—	0
O.2 Absorbed	.1	.031	.008	.086	.009	.006	Less than .01	.02	.04
Poisonous Metals ...	0	0	—	—	Iron (trace)	0	0	Iron .03	0
Plumbosolvency ...	0	0.3	—	0	—	0	—	—	—
Rainfall 24 hours ...	—	0.34″	Nil.	Heavy	.18″	.19″	—	—	Nil.
Date Sampled	—	15/10/47	8/5/51	1/9/48	28/5/51	30/7/48	3/8/48	1/7/47	13/7/49
Laboratory	—	Kendal	Carlisle	Carlisle	Carlisle	Carlisle	Runcorn	Kendal	Carlisle

Chemical analyses expressed in parts per 100,000.

*Chlorinators were not working properly.